CLAIMS

1. A storage system for use in a storage system cluster, the storage system comprising:

a storage operating system including a cluster connection manager adapted to create, destroy, and maintain one or more communication sessions with a cluster partner, the cluster connection manager operatively interconnected with a set of cluster connection manager clients.

2. The storage system of claim 1 wherein one of the set of communication clients comprises a failover monitor.

3. The storage system of claim 1 wherein one of the set of cluster connection manager clients comprises a non-volatile random access memory shadowing process.

4. The storage system of claim 1 wherein the cluster connection manager is further adapted to perform connection management operations in response to communications from the connection manager clients.

5. The storage system of claim 4 wherein the communications comprise an application program interface function call.

6. The storage system of claim 1 wherein the cluster connection manager is further adapted to load balance the one or more communication sessions over a plurality of cluster interconnect devices.

7. The storage system of claim 1 wherein the cluster connection manager is further adapted to perform a failover procedure for one or more communication sessions from a failed cluster interconnect device to an operational cluster interconnect device.

8. The storage system of claim 1 wherein the cluster connection manager is operatively interconnected with a plurality of cluster interconnect devices.

9. The storage system of claim 1 wherein the storage operating system comprises a plurality of cluster connection managers.

10. A storage operating system, executing on a storage system, the storage operating system comprising:

a cluster connection manager adapted to manage a set of peer-to-peer connections associated with a set of cluster connection manager clients executing on the storage system.

11. The storage operating system of claim 10 wherein the set of cluster connection manager clients comprises a failover monitor.

12. The storage operating system of claim 10 wherein the cluster connection manager is further adapted to perform load balancing of the set of peer-to-peer connections over a plurality of cluster interconnect devices.

13. The storage operating system of claim 10 wherein the cluster connection manager is further adapted to failover the set of peer-to-peer connections from a failed cluster interconnect device to an operational cluster interconnect device.

14. A method for initiating a peer-to-peer communication session, the method comprising the steps of:

creating an initial connection;

exchanging a set of peer connection information;

passing a set of client information to the cluster partner;

creating a set of appropriate communication ports;

alerting the cluster partner of a ready status; and

alerting a set of clients that the cluster partner is in a ready state.

15. The method of claim 14 wherein the set of clients comprises a failover monitor process.

16. The method of claim 14 wherein the set of peer connection information comprises a version number.

17. The method of claim 14 wherein the step of passing a set of client information to the cluster partner further comprises the steps of:

collecting, from a set of clients, the set of client information; and

transferring the collected set of client information to the cluster

18. The method of claim 17 wherein the client information comprises a number of communication ports required.

19. The method of claim 17 wherein the set of client information further comprises an amount of memory requested by a particular client.

20. The method of claim 14 wherein the step of creating an initial connection further comprises the step of using remote direct memory access primitives to create the initial connection.

21. The method of claim 14 wherein the step of creating an initial connection further comprises the step of performing a series of remote direct memory access operations to create the initial connection.

22. A method for terminating a peer-to-peer communication session, the method comprising the steps of:

alerting a set of clients of an impending termination of the communication session;

closing, by the clients, a set of communication ports associated with the communication session; and

performing an initialization of a peer-to-peer communication session procedure.

23. The method of claim 22 wherein the set of communication ports comprises a set of virtual interface connections.

24. The method of claim 22 wherein the set of clients comprises a failover monitor.

25. A storage operating system, executing on a storage system, the storage operating system comprising:

a cluster connection manager having means to manage a set of peer-to-peer connections associated with a set of cluster connection manager clients executing on the storage system.

26. The storage operating system of claim 25 wherein the set of cluster connection manager clients further comprises a failover monitor.

27. The storage operating system of claim 25 wherein the set of cluster connection manager clients further comprises a nonvolatile random access memory shadowing process.

28. A system configured to manage reliable peer communication among storage systems in a clustered environment, the system comprising:

one or more peer processes executing on each storage system partner; and

a cluster connection manager executing on each storage system partner, the cluster connection manager creating a set of peer-to-peer connections between the one or more peer processes executing on each storage system.